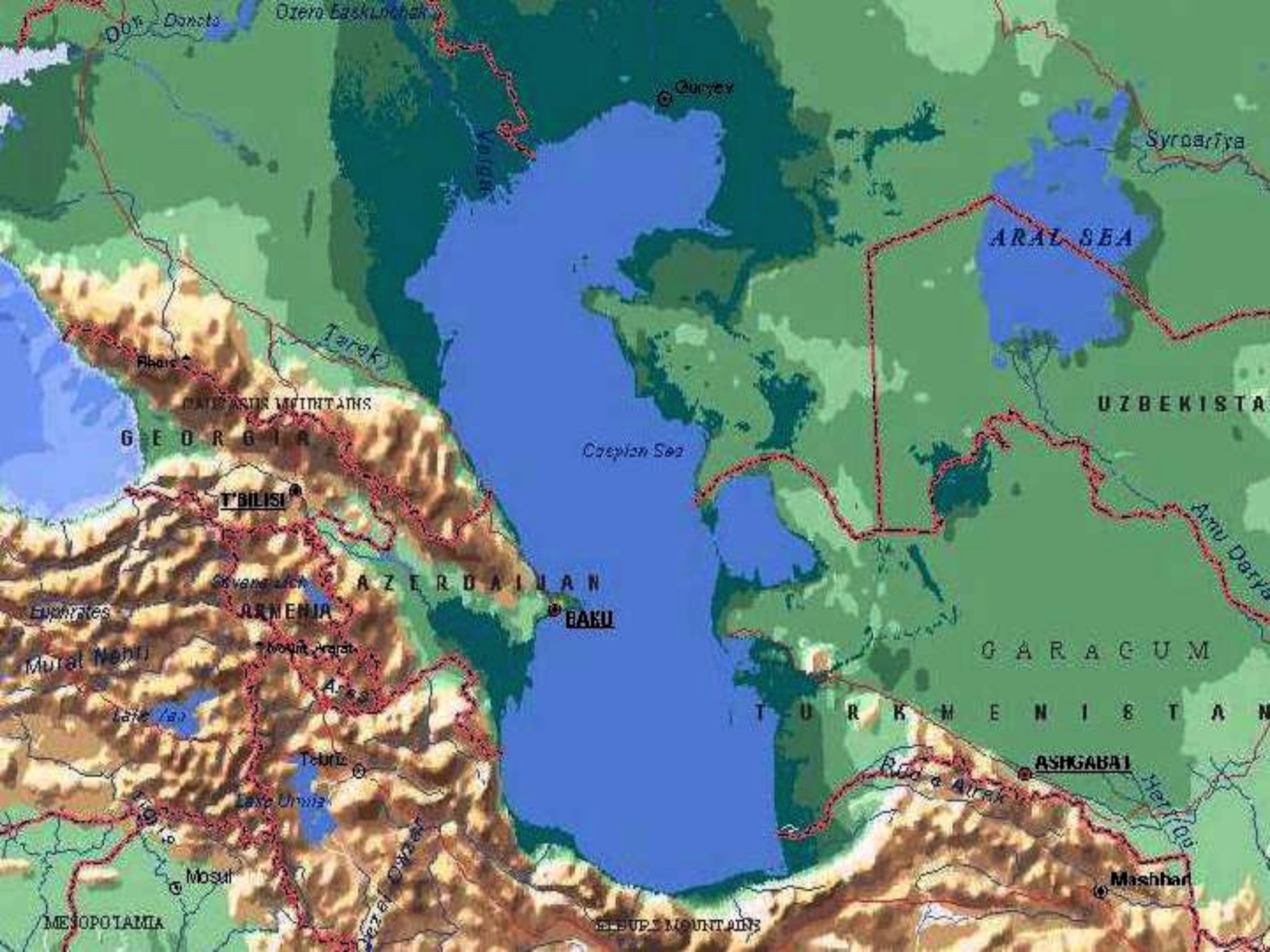
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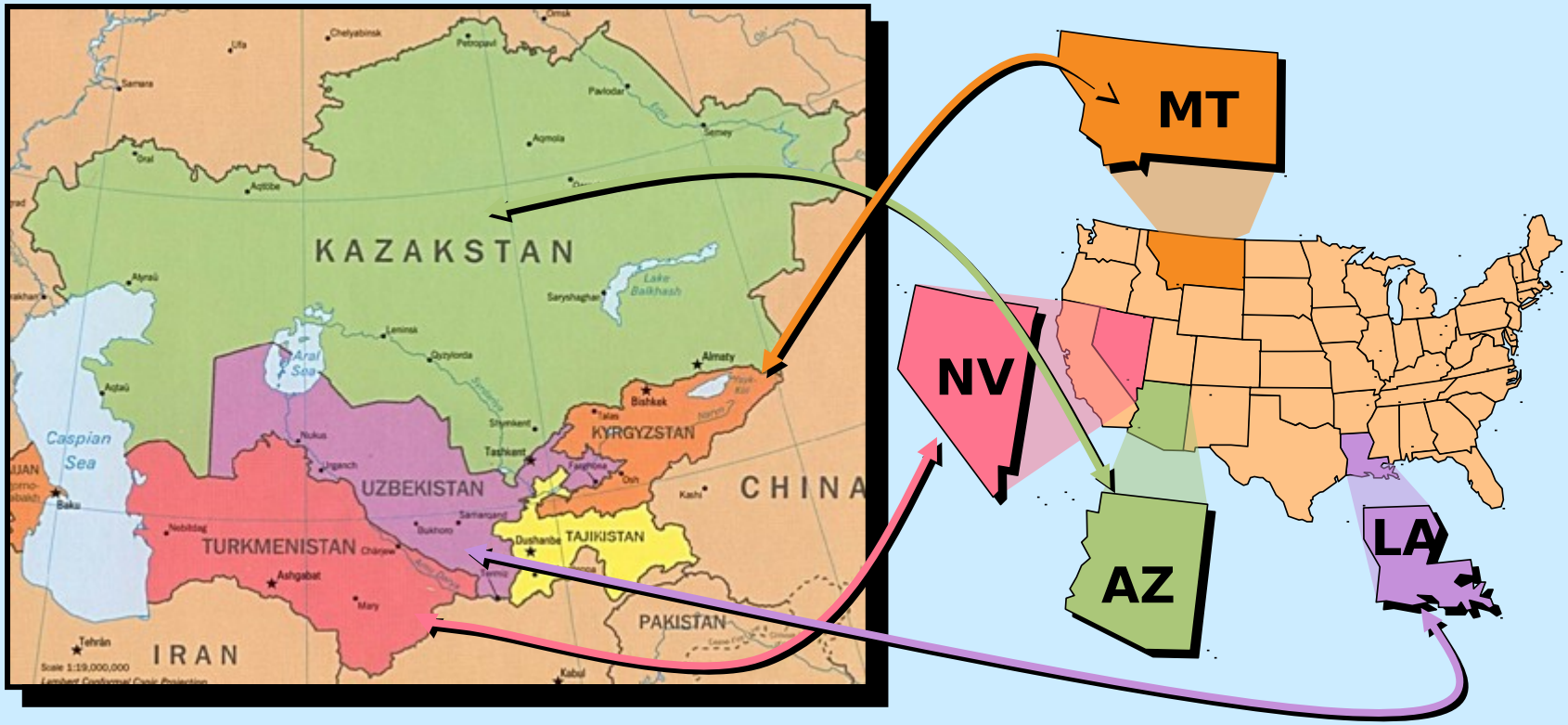
TURKMENISTAN
ASHGABAT
Mashhad

Regional Military Environmental Cooperation in the Caspian Basin & Central Asian States

- March 2001: *Responding to Environmental Challenges in Central Asia and the Caspian Basin* – Marshall Center, Garmisch-Partenkirchen, GE
- April 2002: *Disaster Response and Consequence Management in Central Asia and the Caspian Basin* - Marshall Center, Chiemsee, GE
- Sep-Oct 2003: *Expanding Regional Opportunities For Disaster Response, Including Acts Related To Terrorism And The Trafficking Of Weapons Of Mass Destruction* – Almaty, KZ

International Workshop for Emergency Response (IWER)



Provided a forum for exchange of information and ideas regarding military support to civil authorities as they respond to natural disasters

The Next Step

Central Asian States Disaster Preparedness Workshop (CAS-DPW)

19 - 24 Sep 04

The National Security Hierarchy of Needs

Environmental Security Issues

- **Major variable in regional instability and conflict exacerbating tensions**
  - Religious, ethnic, socio-economic disparities between rural and urban areas, rapid economic development, and border disputes.
- **May also promote regional stability as confidence building measures**
  - Opportunities for communication and cooperation between regional states

NATO Strategic Concept

Risks to Allied security are less likely to result from calculated aggression . . . but rather from the adverse consequences of instabilities . . . faced by many countries. . . . security and stability have political, economic, social, **and environmental elements** as well as the indispensable defense dimension.

Managing the diversity of challenges facing the Alliance requires a broad approach to security.

"The Alliance's New Strategic Concept"
NATO Press Service

U.S. Interests in the Caspian Basin and the Central Asian States

- *Energy Access and Development*
- *Global War on Terrorism*
- *Democratization*
- *Market Economies*
- *Political Independence*
- *Regional Stability*

Caspian Basin & Central Asia

Caspian Basin & Central Asia

Basic Characteristics of the Caspian Sea

- World's largest inland body of water; No surface outlets
- Volga River contributes 78% of the annual water input
- Seasonal habitats to Eurasian migrating birds
- Home to 400,000 seals and 90% of the world's sturgeon

Caspian Environmental Baseline

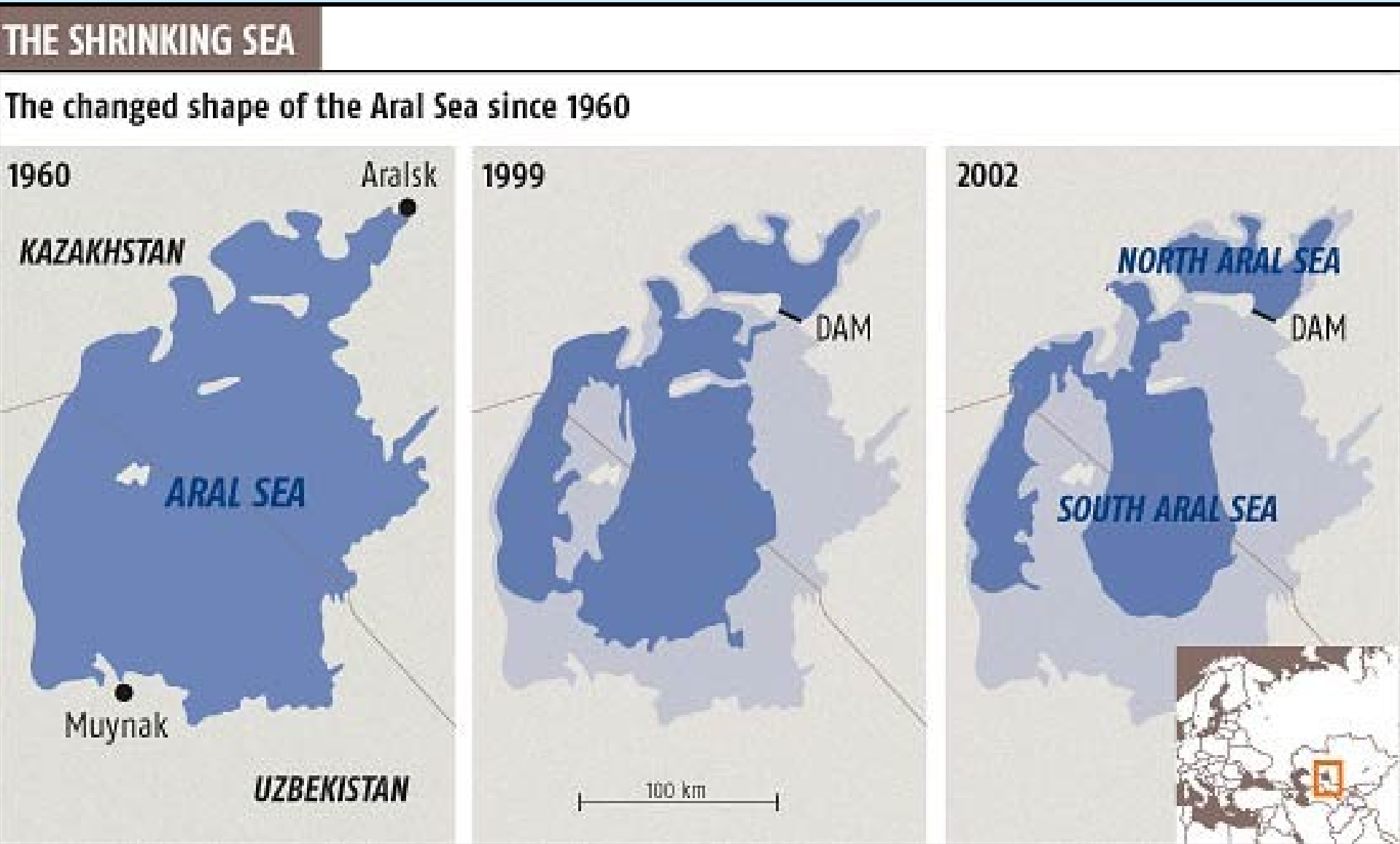
- Major Environmental Issues In the Caspian Basin & Central Asia
  - Water Quantity and Quality
  - Energy Resources
  - Aral Sea Disaster
  - Weapons of Mass Destruction (WMD) and their Legacy
  - Caspian Sea Level Changes

Energy in the Caspian Basin

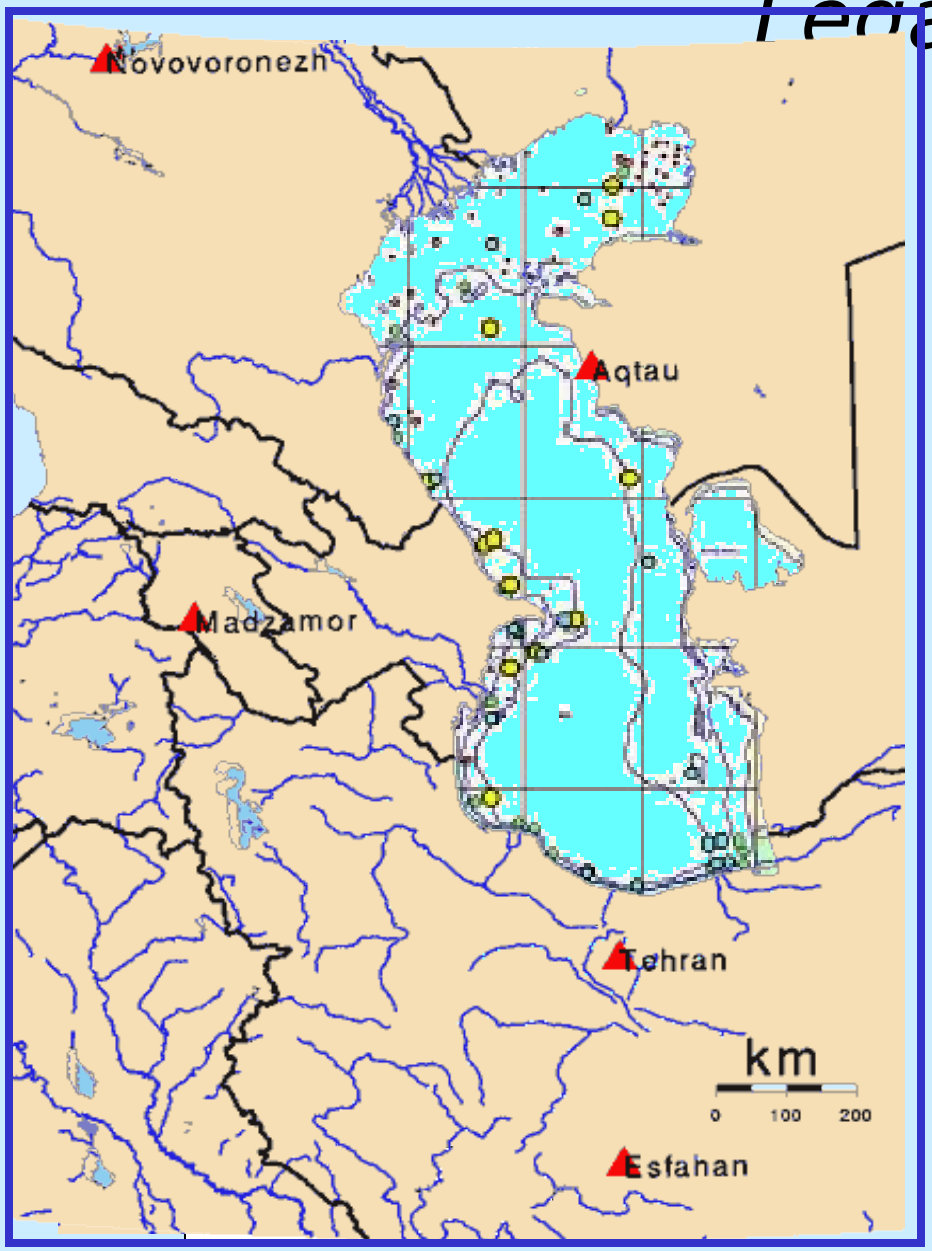
Environmental Impacts

- Environmental impacts are possible from five general elements of the oil and gas industry:
  - Exploration
  - Drilling
  - Production
  - Gathering, Transportation, & Distribution
  - Refining and Processing.
- Concerns associated with each element:
  - Active tectonic zones.
  - Mud volcanoes on the sea floor.
- Other Concerns
  - Fisheries
  - Sturgeon/Caviar
  - Sea Level Rises

Aral Sea


THE SHRINKING SEA
The changed shape of the Aral Sea since 1960
1960
Aralsk
KAZAKHSTAN
ARAL SEA
Muynak
UZBEKISTAN
1999
DAM
100 km
2002
NORTH ARAL SEA
DAM
SOUTH ARAL SEA

Destruction ...*and their Legacy*



Uranium in Sediments (μg/g)

0.310 – 1

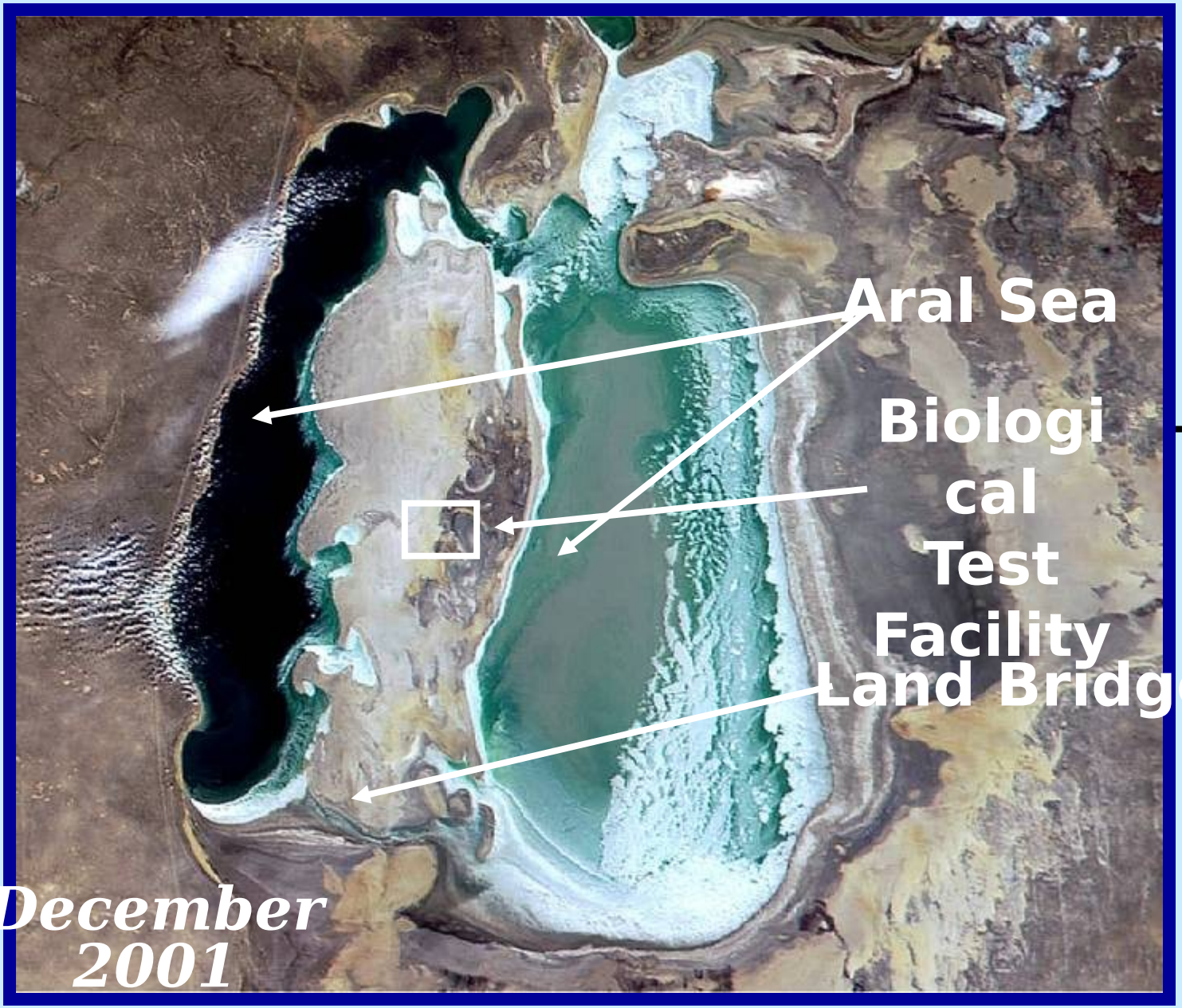
1 – 2.5

2.5 – 5

5 – 8

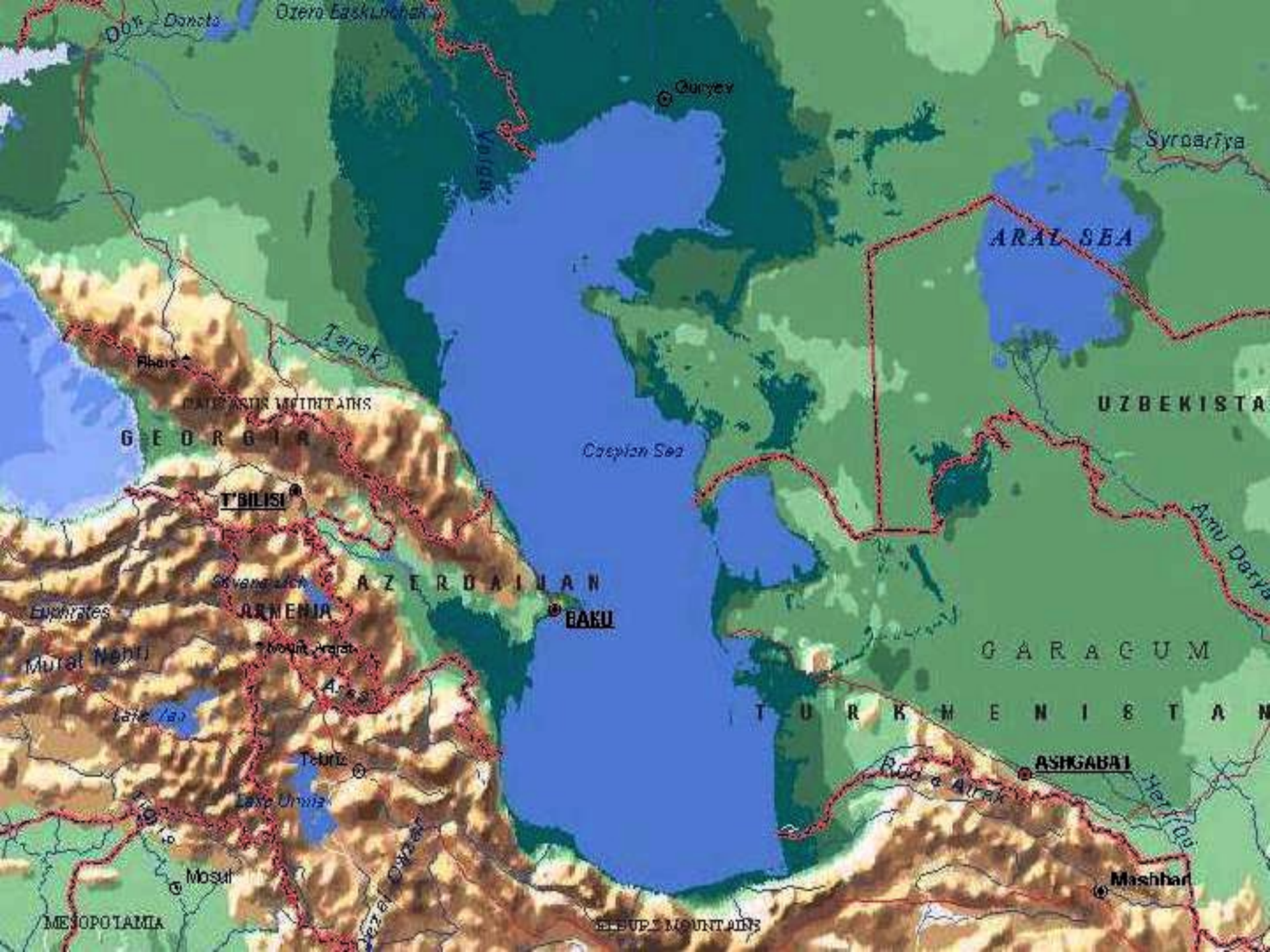
8 – 11.1

Vozrozhdeniye Island, Aral Sea



Environmental Implications of Sea Level Change

- Increased freshwater flow increases discharge of sewage, contaminants and pesticides
- Inundation of infrastructure
  - At least 10,000 homes lost
  - Port facilities inundated
  - Nuclear power installations threatened
  - Agricultural loss and soil salinization extensive
  - Hydrocarbon pollution
- Ownership of seabed resources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Sarez Lake

- Formed by earthquake in the Central Pamir range in February 1911.
- 60+ kilometers long; earthen dam is 550 meters high.
- Disintegration of the dam or displacement wave would impact Tajikistan, Afghanistan, Turkmenistan, and Uzbekistan.

The height of the water wave across this great distance would range from 3 to 25

Oil and Gas Development Infrastructure Vulnerabilities

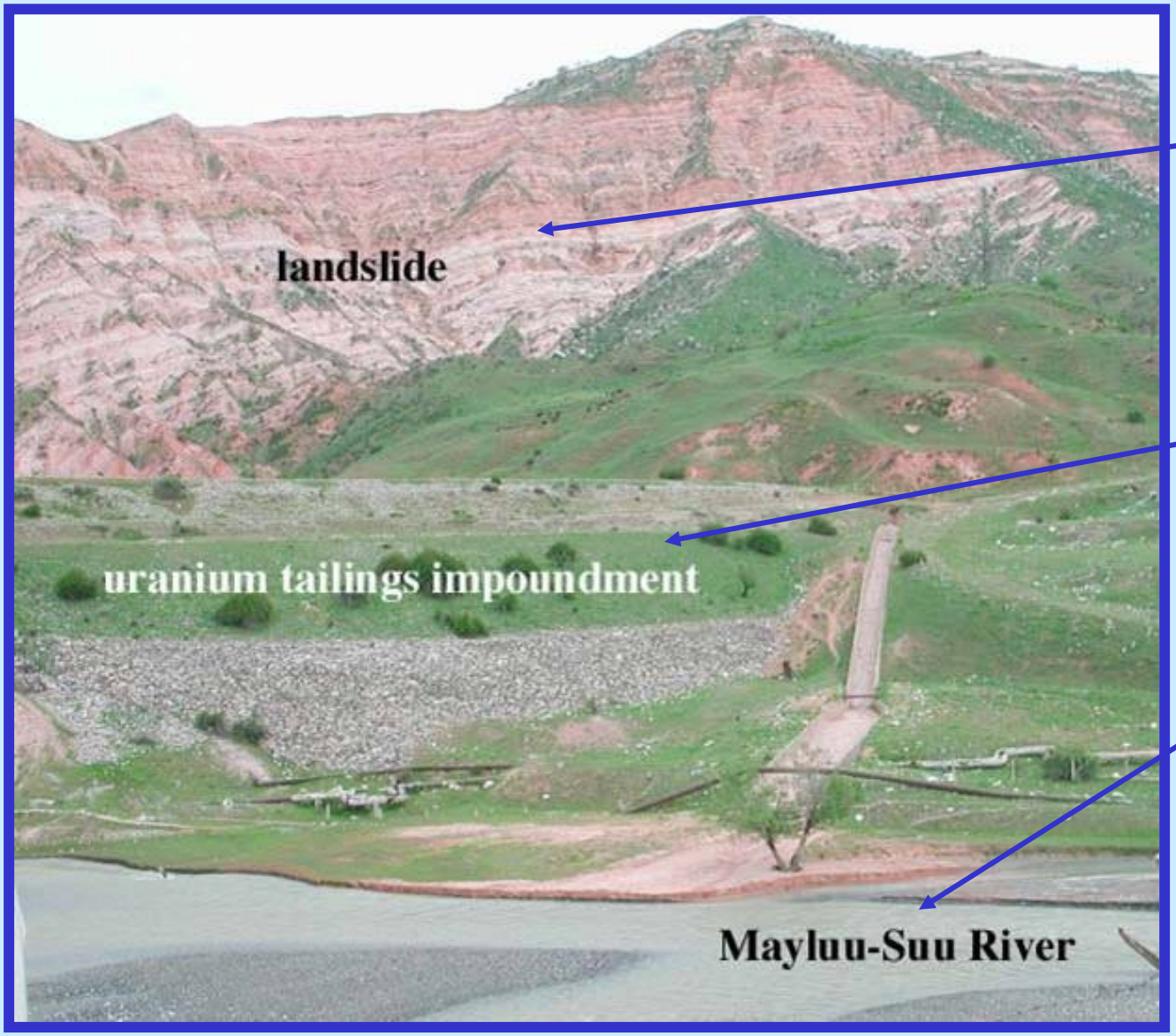
Upstream

Downstream

Energy Pipelines in the Caspian Basin

- Petroleum.
  - Oil Pipeline routes involve Russia, Iran, Turkey, Georgia, and Azerbaijan.
  - Future pipeline from Caspian to China's western provinces.
- Natural Gas.
  - Gas Pipeline routes involve Russia, Iran, Turkey, Afghanistan, Pakistan, and India

Vulnerability of Uranium Waste Sites



SEISMIC ACTVITY

WASTE SITE

FLOODING

Reactor at Aqtau, Kazakhstan

BN-350 Reactor

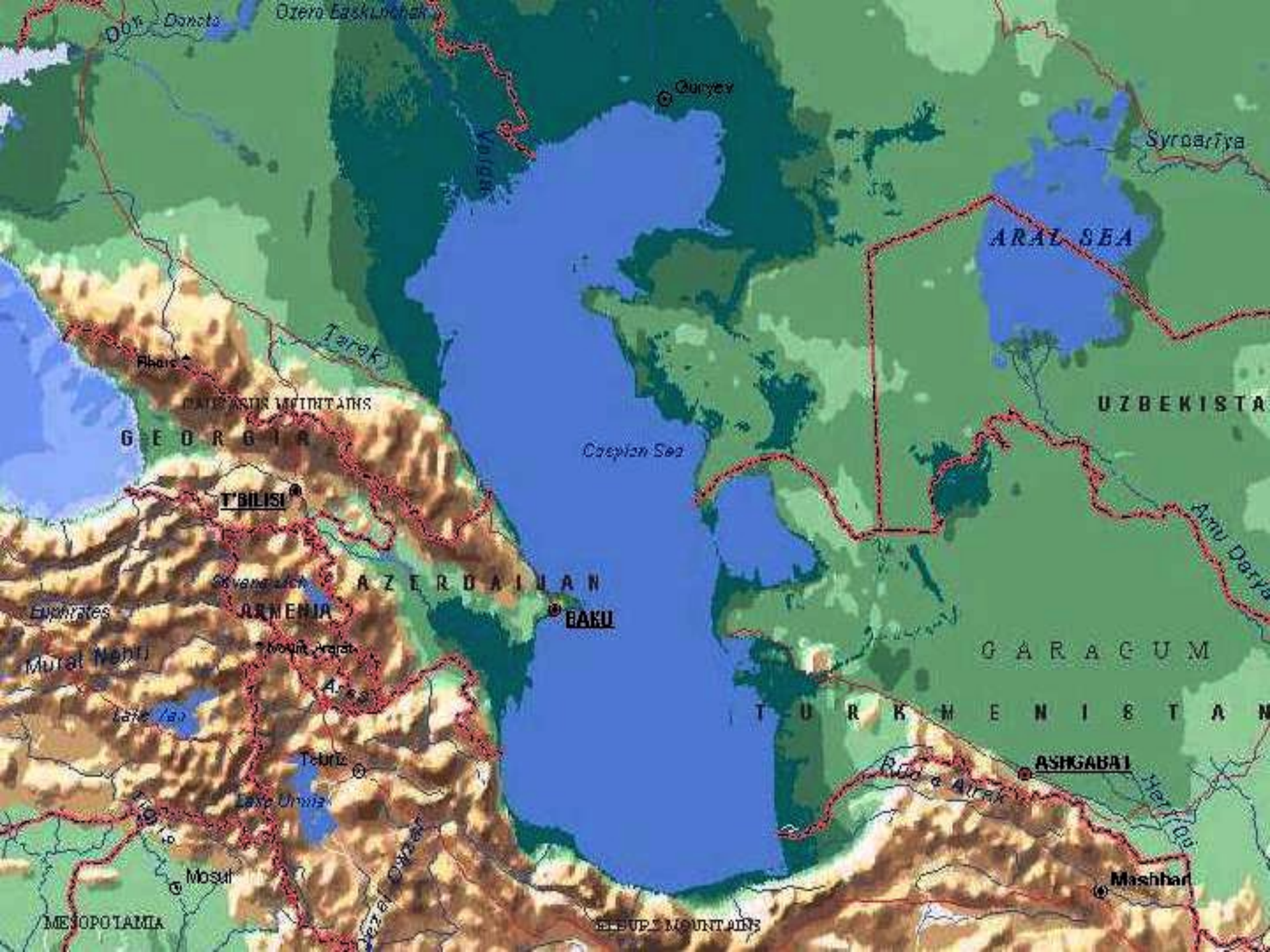
Decommissioning scheduled for 2005

Radioactive Waste Storage An Issue

The “Bottom Line”

- **Disaster Preparedness Planning & Coordination Mechanisms In Place**
  - **Local, Regional, and National Capabilities**
- **Centralized Civilian Leadership**
  - **Local, Regional, and National Levels**
- **Information Management & Exchange System**
  - **Emergency Recognition & Response Network**
- **Public Affairs & Media Relations**

“Keeping the public informed increases confidence in the government’s actions”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